Amendment to the Claims

1. (previously presented) A method comprising:

creating a plurality of nanotubes, the nanotubes each having a substantially cylindrical wall and a plurality of magnetic atoms that are ~~encircled by~~ attached to the wall;

aligning the nanotubes on a grid having metal lines, such that each of the nanotubes has a first portion that overlaps a metal grid line and a second portion that does not overlap the metal grid line; and

removing the second portions.

2. (original) The method of claim 1, wherein creating the plurality of nanotubes includes arc discharge, laser evaporation or chemical vapor deposition.

3. (original) The method of claim 1, wherein creating the plurality of nanotubes includes forming small cluster of magnetic atoms in the nanotube, such that the nanotube exhibits superparamagnetism at room temperature.

4. (currently amended) The method of claim 1, wherein creating the plurality of nanotubes includes forming a magnetic alloy containing cobalt, nickel or iron in the ~~nanotube~~ nanotubes.

5. (currently amended) The method of claim 1, wherein aligning the nanotubes on the grid includes applying a magnetic ~~force~~ field of less than 2 Tesla.

6. (original) The method of claim 1, wherein aligning the nanotubes on the grid includes scanning a row of sharp tips over the grid.

7. (currently amended) The method of claim 1, wherein removing the second portions includes applying ~~an electric current the grid~~ a voltage between metal lines.

8. (original) The method of claim 1, wherein removing the second portions includes etching the second portions with the grid as an etching mask.

9. (withdrawn): A method comprising:

providing a plurality of nanotubes, the nanotubes each having a substantially cylindrical wall that encircles at least one magnetic element, such that the nanotubes each have a submicron diameter and a length measured in a direction perpendicular to the diameter, the length being greater than the diameter;

providing a filtration apparatus; and

filtering the nanotubes by the filtration apparatus according to the length of each of the nanotubes.

10. (withdrawn): The method of claim 9, wherein the filtering includes applying a nonuniform magnetic field to the nanotubes in the filtration apparatus.

11. (withdrawn): The method of claim 9, wherein the filtering includes applying an electric field to the nanotubes in the filtration apparatus.

12. (withdrawn): The method of claim 9, wherein the filtering includes spinning the nanotubes in the filtration apparatus.

13. (withdrawn): The method of claim 9, further comprising dispersing the nanotubes in a chemical and thereby forming a colloidal solution.

14. (withdrawn): A method comprising:

providing a plurality of nanotubes, the nanotubes each having a substantially cylindrical wall that encircles at least one magnetic element, such that the nanotubes each have a submicron diameter and a length measured in a direction perpendicular to the diameter, the length being greater than the diameter;

dispersing the nanotubes in a solution;

dispensing the solution on a wafer; and

arranging the nanotubes on the wafer by providing magnetic fields that interact with the magnetic elements of the nanotubes.

15. (withdrawn): The method of claim 14, wherein the solution is dispensed onto the wafer by spin coating.

16. (withdrawn): The method of claim 14, further comprising patterning the wafer with magnetic regions.

17. (withdrawn): The method of claim 14, further comprising magnetizing the magnetic elements with a magnetic field.

18. (withdrawn): A transistor comprising:

a source;

a drain;

a gate; and

a channel, the channel including a nanotube having a substantially cylindrical wall that encircles at least one magnetic element, wherein the nanotube has a submicron diameter and an elongate dimension that is substantially perpendicular to the diameter, such that the source, the drain and the gate are substantially aligned along the elongate dimension.

19. (withdrawn): The transistor of claim 18, wherein the transistor is fabricated by at least one of the methods of claims 1 through 17, inclusive.

20. (withdrawn): An electronic apparatus comprising:

a plurality of electronic devices; and

a plurality of conductive interconnects that are connected between the electronic devices, each of the conductive interconnects including a nanotube having a substantially cylindrical wall formed that encircles at least one magnetic element.

21. (withdrawn): The electronic apparatus of claim 20, wherein the conductive interconnects are fabricated by at least one of the methods of claims 1 through 17, inclusive.

22. (withdrawn): The electronic apparatus of claim 20, wherein the electronic devices include a magnetic random access memory (MRAM) cell, and the conductive interconnects are fabricated by at least one of the methods of claims 1 through 17, inclusive.

23. (withdrawn): A sensor device for detection of biological or chemical molecules comprising:

a plurality of electrodes;

a single or a plurality of nanotube channels between each pair of electrodes, wherein the nanotubes are substantially aligned with each other and with respect to the electrodes.

24. (withdrawn): The sensor device of claim 23, wherein the nanotube channels are fabricated by at least one of the methods of claim 1 through claim 17, inclusive.

25. (currently amended): The method of claim 1, wherein the grid ~~of metal line~~ having metal lines is made up of ferromagnetic materials.

26. (currently amended): The method of claim 1, wherein the length of nanotubes is longer than the spacing between ~~neighboring~~ two adjacent metal lines of the grid.

27. (currently amended): The method of claim ~~1~~ 25, wherein aligning the nanotubes on the grid includes applying a magnetic field.

28. (previously presented): The method of claim 1, wherein aligning the nanotubes on the grid includes applying a magnetic field gradient.